UNITED STATES PATENT AND TRADEMARK OFFICE

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EXAMINER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
Office Action Summary	10/698,111	HARVILLE, MICHAEL
	Examiner	Art Unit
	Bernard Krasnic	2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 March 2007*.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-40* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-40* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1.   The amendment filed 3/19/2007 have been entered and made of record.

2.   In response to the amendments filed on 3/19/2007:

The "Objections to the Specification" have been entered and therefore the

Examiner withdraws the objections to the specification.

The "Objections to the Drawings" have been entered and therefore the Examiner

withdraws the objections to the drawings.

The "Objections to the claims" have been entered and therefore the Examiner

withdraws the objections to the claims.

3.   Applicant's arguments with respect to claims 1-40 have been considered but are

moot in view of the new ground(s) of rejection by the Applicant's amendments toward

independent claims 1, 23 and 32.

The Applicant alleges, "Independent Claim 1 recites a ...." in page 17, and states

respectively that the reference Carrott discloses all the limitations of claim 1 as the

Examiner discussed in the Examiners original Non-Final Office Action except that

Carrott does not disclose a visual sensor comprising an emitter and sensor of light. The

Examiner agrees that in the initial rejection, Carrott's ultrasonographic imaging system

[ultrasonographic imaging system uses sound waves to create visual depth data] was

used to describe the visual system and that this ultrasonographic imaging system does

not teach the amended limitation of a visual sensor comprising an emitter and sensor of

light. However, the Examiner disagrees that the reference Carrot does not disclose this

amended limitation because the reference clearly states that an ultrasonographic

imaging system or its equivalent may be used to produce this visual depth data, its most

common equivalent being the X-ray system (see Carrott, col. 2, lines 41-44, col. 1, lines

25-28) and an X-ray system operates using emitters and sensors of light. The Applicant

also states respectively that the Applicants claimed invention is different from Carrot in

the sense that "the depth mentioned in the claims refers to the distance to the surface of

an object while the depth mentioned in Carrott refers to the depth within (below the

surface of) an object". However the Examiner disagrees because the claimed invention

does not refer to the distance to the surface of an object only refers to distance as a

relation from a visual sensor to a portion of an object. Therefore, the rejection to claim 1

and its dependent claims are maintained. Similarly, the rejections to claims 23 and 32

and their dependent claims are also maintained. Further discussions will be presented

below and in the rejections below.

4.   Applicant's arguments filed 3/19/2007 have been fully considered but they are

not persuasive.

        The Applicant alleges, "According to the instant Office Action ..." in page 16, and

states respectively that the cited reference does not show or suggest the present

claimed invention. However the Examiner disagrees because as discussed above, the

amended limitation is indeed taught and disclosed by the reference Carrott.

The Applicant alleges, "According to the Federal Circuit ..." in page 17, and states respectively that the prior art reference does not disclose each element of the claimed invention. However the Examiner disagrees because as discussed above, the reference Carrott does teach and disclose the amended limitation.

The Applicant alleges, "In summary, Applicant respectfully submits ..." in page 17, and states respectively that Carrott does not show or suggest the limitations of independent claims 1 and 23 and that the dependent claims 2, 4, 6, 9, 11, 13-15, 18, 24, 26, and 28-31 and therefore these claims are in condition for allowance. However the Examiner disagrees because as discussed above, Carrott does teach and disclose the amended limitation and therefore the rejection is maintained on independent claims 1 and 23 and that the dependent claims 2, 4, 6, 9, 11, 13-15, 18, 24, 26, and 28-31.

The Applicant alleges, "According to the instant Office, Claims ..." in page 18, "Claims 5 and 7-8 are dependent ..." in page 18, and "As presented above, Applicant respectfully submits ..." in page 18, and states respectively that Carrott does not disclose the amended limitation of a visual sensor comprising an emitter and a sensor of light and therefore the limitations of claims 1, 5, 7-8, 32-33, 35-37 and 39-40 are not taught or suggested. However the Examiner disagrees because as discussed above, Carrott does teach and disclose the amended limitation and therefore the rejection is maintained on claims 1, 5, 7-8, 32-33, 35-37 and 39-40.

The Applicant alleges, "Furthermore, the Examiner is reminded ..." in pages 18-19, and states respectively that the reference Carrott is not analogous prior art. In response to applicant's argument that Carrott is nonanalogous art, it has been held that

a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Carrott is in reasonably pertinent because both the Applicant's claimed invention and Carrott deal with acquiring depth data to classify and make a decision on an image using an emitter and sensor of light. Therefore, Carrott is analogous art.

The Applicant alleges, "For any or all of the reasons above ..." in page 19, and states respectively that claims 1, 5, 7-8, 32-33, 35-37 and 39-40 are in condition for allowance. However the Examiner disagrees because as discussed above, these claims are taught and disclosed by Carrott and therefore the rejections are maintained.

The Applicant alleges, "According to the instant Office ..." in page 19, "Claims 3, 10, 12, 16-17, 19-22, 25, 27, 34, and 38 are dependent ..." in pages 19-20, "As presented above, Carrott does not ..." in page 20, and "Furthermore, as presented above ..." in page 20, and states respectively that reference Carrott and reference Li, alone or in combination thereof does not disclose the amended limitation of a visual sensor comprising an emitter and a sensor or light and therefore the limitations of claims 1, 23, 32, 3, 10, 12, 16-17, 19-22, 25, 27, 34, and 38 are in condition for allowance. However the Examiner disagrees because as discussed above, Carrott does teach and disclose the amended limitation. Therefore the rejections are maintained.

The Applicant alleges, "Furthermore, as presented above ..." in page 20 and "Nevertheless, Applicant respectfully reiterates ..." in page 21, and states respectively that Carrott is non-analogous art. However the Examiner disagrees because as discussed above, Carrott is analogous art.

The Applicant alleges, "Moreover, even if Carrott is considered, Applicant ..." in pages 20-21, and states respectively that Carrott and Li alone or in combination do not show or suggest a visual sensor comprising an emitter and sensor of light and the acquisition of depth data as the one claimed. However the Examiner disagrees because as discussed above, Carrott does disclose the amended limitation and does teach the acquisition of depth data as the one claimed. The Applicant has interpreted the distance to be the distance from the visual sensor to the surface to the object which just isn't claimed, the claim reads "relating to distance from a visual sensor to a portion of said object", the portion may be any part of the object not just the surface. Therefore, the rejections are maintained.

The Applicant alleges, "For any or all of the reasons above ..." in page 21 and "Conclusions ..." in page 21, and states respectively that because of the amended limitations and the presented arguments, claims 1-40 are in condition for allowance. However the Examiner disagrees because as discussed above, Carrott does disclose the amended limitation and therefore does teach the claimed invention.

Claim Rejections - 35 USC § 102

5.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section · 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6.   Claims 1, 2, 4, 6, 9, 11, 13-15, 18, 23, 24, 26, and 28-31 are rejected under 35

U.S.C. 102(e) as being anticipated by Carrot et al (US 6909792 B1).

Re Claim 1: Carrot discloses a method for visual-based recognition (see Abstract, lines

1, and 11-15) of an object / breast, said method comprising receiving depth data (see

Fig. 7, col. 6, line 21, depth or z') for at least a pixel of an image of an object, said depth

data comprising information relating to a distance from a visual sensor (see col. 6, lines

5-26, distance from the ultrasonic scanner [an ultrasonographic imaging system or its

equivalent may be used to produce this visual depth data, its most common equivalent

being the X-ray system] to the different parts of the breast tissue, col. 2, lines 41-44, col.

1, lines 25-28) to a portion of said object / breast shown at said pixel, said visual sensor

/ X-ray system comprising an emitter and sensor of light (see col. 2, lines 41-44, col. 1,

lines 25-28, an ultrasonographic imaging system or its equivalent may be used to

produce this visual depth data, its most common equivalent being the X-ray system, an

X-ray system operates using emitters to emit x-ray light and light sensors to detect the

light on the opposite end); generating a plan-view image / slice (167) (see Fig. 7, col. 9,

lines 22-23) based in part on said depth data; extracting a plan-view template / entire

slice (167) (see Fig. 7, Abstract, lines 11-15, historical images, registered images from

previous scanning of the breast tissue, the template may be the entire plan-view image

itself) from said plan-view image; and processing said plan-view template at a classifier

/ correlator (30) (see Fig. 1, col. 2 line 45-47), wherein said classifier is trained to make

a decision (see Abstract, lines 11-15, tumor growth or shrinkage) according to pre-

configured parameters.

Re Claim 2: Carrot discloses receiving non-depth data / color (see col. 2, line 57,

multicolor imagery) for said pixel.

Re Claim 4: Carrot discloses selecting a subset / ROI of said depth data / multicolored

data based on foreground segmentation / thresholding multicolored data (see col. 3,

lines 58-60, getting ROI with thresholding gives features of breast, col. 3, lines 40-43).

Re Claim 6: Carrot discloses receiving non-depth data / multicolored data for said pixel,

and wherein said foreground segmentation / thresholding multicolored data is based at

least in part on said non-depth data (see col. 1, lines 64-66, Abstract, lines 13-15,

thresholding on ROI colored image, col. 3, lines 58-60).

Re Claim 9: Carrot discloses extracting said plan-view template from said plan-view

image is based at least in part on object tracking / ROI (see col. 3, lines 25-36 and 40-

43, tracking ROI).

Re Claims 11: Carrot discloses said plan-view image is based in part on said non-depth

data (see col. 2, line 57, multicolor imagery, each slice or plan-view will also have

multicolor imagery).

Re Claim 13: Carrot discloses said plan-view image comprises a value based at least in

part on an estimate of height / depth z' of a portion of said object / breast above a

surface /pressure plate (83, 84) (see Fig. 3, col. 5, lines 59-61, the depth is considered

as an estimate of height a result of the breast being on a pressure plate).

Re Claim 14: Carrot discloses said plan-view image comprises a value based at least in

part on color data for a portion of said object (see Abstract, lines 13-15, col. 1, lines 64-

65, col. 3, lines 4-8, col. 2, line 57, multicolor imagery, each slice or plan-view will also

have multicolor imagery).

Re Claim 15: Carrot discloses said plan-view image comprises a value based at least in

part on a count of pixels / ROI obtained by said visual sensor and associated with said

object (see col. 3, lines 27-44, col. 4, lines 26-28, ROI has a certain amount or count of

pixels).

Re Claim 18: Carrot discloses performing height normalization / depth z' based on

pressure plate (83, 84) on said plan-view template / slice (167) (see Figs. 3 and 7; col.

5, lines 59-61, the depth is considered as a height normalization as a result of the

breast being on a pressure plate, the three dimensional image is therefore dependent

upon the height normalization and therefore each template or slice is dependent upon

the height normalization).

Re Claim 23: Carrot discloses a visual-based recognition system comprising a visual

sensor (20) (see Fig. 1, col. 2, lines 41-45, Abstract, lines 1, and 11-15) for capturing

depth data (see Fig. 7, col. 6, line 21, depth or z') for at least a pixel of an image of an

object / breast, said depth data comprising information relating to a distance from said

visual sensor (see col. 6, lines 5-26, distance from the ultrasonic scanner [an

ultrasonographic imaging system or its equivalent may be used to produce this visual

depth data, its most common equivalent being the X-ray system] to the different parts of

the breast tissue, col. 2, lines 41-44, col. 1, lines 25-28) to a portion of said object visible

at said pixel, said visual sensor / X-ray system comprising an emitter and sensor of light

(see col. 2, lines 41-44, col. 1, lines 25-28, an ultrasonographic imaging system or its

equivalent may be used to produce this visual depth data, its most common equivalent

being the X-ray system, an X-ray system operates using emitters to emit x-ray light and

light sensors to detect the light on the opposite end); a plan-view image generator

(20,24) (see col. 6, lines 27-55) for generating a plan-view image / slice (167) (see Fig.

7, col. 9, lines 22-23) based on said depth data; a plan-view template generator (20,24) (see col. 6, lines 45-50, access historical images) for generating a plan-view template / slice (167) (see Fig. 7, Abstract, lines 11-15, historical images, registered images from previous scanning of the breast tissue, the template may be the entire plan-view image itself) based on said plan-view image; and a classifier / correlator (30) (see Fig. 1, col. 2 line 45-47) for making a decision concerning recognition (see Abstract, lines 11-15, tumor growth or shrinkage) of said object, wherein said classifier is trained to make a decision according to pre-configured parameters.

Re Claim 24: Carrot discloses said visual sensor is also for capturing non-depth data / color (see col. 2, line 57, multicolor imagery).

Re Claim 26: Carrot discloses a pixel subset selector (52, 24) for selecting a subset / ROI of pixels of said image, wherein said pixel subset selector is operable to select said subset of pixels based on foreground segmentation / thresholding multicolored data (see Figs. 1 and 2a, see col. 3, lines 58-60, getting ROI with thresholding gives features of breast, col. 3, lines 40-43).

Re Claim 28: Carrot discloses said plan-view image is based in part on said non-depth data (see col. 2, line 57, multicolor imagery, each slice or plan-view will also have multicolor imagery).

Re Claim 29: Carrot discloses to generate a three-dimensional point cloud / three

dimensional data set based on said depth data / direction z', wherein a point of said

three-dimensional point cloud comprises a three-dimensional coordinate / x', y', z' (see

Fig. 7, col. 3, lines 4-7, col. 6, lines 20-21).

Re Claim 30: Carrot discloses to divide said three-dimensional point cloud / three

dimensional data set into a plurality of slices such that a plan-view image (167) may be

generated for at least one slice of said plurality of slices (see Fig. 7, col. 3, lines 4-7, col.

9, lines 16-27).

Re Claim 31: Carrot discloses to extract a plan-view template / slice (167) from at least

two plan-view images / plurality of slices corresponding to different slices of said

plurality of slices, wherein said plan-view template comprises a transformation /

summing data points of at least a portion of said plan-view images / entire slice, such

that said plan-view template is processed at said classifier (see Fig. 7, col. 9, lines 22-

27).

Claim Rejections - 35 USC § 103

7.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

8.   Claims 5, 7, 8, 32, 33, 35-37, 39 and 40 are rejected under 35 U.S.C. 103(a) as

being unpatentable over Carrot as applied to claims 1 and 23 above.

Re Claim 5 and 32 respectively: Carrot, as recited in claim 5, discloses generating a

three-dimensional point cloud / three dimensional data set of said subset / ROI of pixels

based on said depth data / direction z' (col. 3, lines 27-37 and 40-43, col. 6, lines 20-21,

wherein a point of said three-dimensional point cloud comprises a three-dimensional

coordinate / x', y', z' (see Fig. 7, col. 3, lines 4-7); partitioning said three-dimensional

point cloud into a plurality of vertically oriented bins; and mapping at least a portion of

points of said plurality of vertically oriented bins into at least one said plan-view image /

ROI or slice addition based on said three- dimensional coordinates, wherein said plan-

view image is a two-dimensional representation / slice of said three-dimensional point

cloud comprising at least one pixel corresponding to at least one vertically oriented bin

of said plurality of vertically oriented bins (see col. 3, lines 27-37 and 40-43, ROI may

cover these vertical bins, col. 9, lines 22-26, addition of all the possible slices will then

cover all the bins).

Although the partitioning step of Carrot's three dimensional cloud is not

specifically disclosed, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to have such a feature where the vertical bin is each depth

or z' axis point, so for example, if the point [x',y'] is looked at, all the same points [x',y']

along the different z' values creates a vertical bin.

As to claim 32, all the limitations are taught by Carrot in the same manner as

Carrot taught claims 1, 5, and 6 respectively above.

Re Claim 7: Carrot discloses dividing said three-dimensional point cloud into a plurality

of slices (164, 167), and wherein said generating said plan-view image / slice (167) is

performed for at least one slice of said plurality of slices (see Fig. 7, col. 3, lines 4-7).

Re Claim 8: Carrot discloses extracting a plan view template / slice (167) from at least

two plan-view images / plurality of slices corresponding to different slices of said

plurality of slices, wherein said plan-view template comprises a transformation /

summing data points of at least a portion of said plan-view images / entire slice, such

that said plan-view template is processed at said classifier (see Fig. 7, col. 9, lines 22-

27).

Re Claim 33: Carrot discloses said three-dimensional point cloud / three dimensional

data set and said plan-view image / entire slice (167) are also based at least in part on

non-depth data / multicolored data (see Fig. 7, col. 1, lines 64-65, col. 3, lines 4-7,

Abstract, lines 11-15).

Re Claim 35: Carrot discloses extracting a plan-view template / entire slice (167) from

said plan-view image / slice (167), wherein said plan view template comprises a

transformation / summing data points of at least a portion of said plan view image /

entire slice (167), and such that said plan-view template is processed at said classifier

(see Fig. 7, col. 9, lines 22-27).

Re Claim 36: Carrot discloses dividing said three-dimensional point cloud / three

dimensional data set of into a plurality of slices, and wherein said mapping / summing

data points at least a portion of points comprises mapping points within a slice of said

plurality of slices of said three-dimensional point cloud into said plan-view image / slice

(see col. 3, lines 4-7, col. 9, lines 22-27).

Re Claim 37: Carrot discloses comprising extracting a plan-view template / entire slice

(167) from said plan-view image / slice, wherein said plan view template comprises a

transformation / summing data points of at least a portion of said plan view image /

entire slice (167), such that said plan-view template is processed at said classifier (see

Fig. 7, col. 9, lines 22-27).

Re Claim 39: Carrot discloses said plan-view image / slice is generated from a subset /

ROI of pixels of said image selected based on foreground segmentation / thresholding

multicolored data (see col. 3, lines 58-60, getting ROI with thresholding gives features of

breast, col. 3, lines 40-43).

Re Claim 40: Carrot discloses extracting a plan view template / entire slice (167) from at

least two plan view images corresponding to different slices of said plurality of slices,

wherein said plan view template comprises a transformation / summing of data points of

at least a portion of said plan view images / entire slice (167), such that said plan-view

template is processed at said classifier (see Fig. 7, col. 9, lines 22-27).

9.   Claims 3, 10, 12, 16, 17, 19-22, 25, 27, 34, and 38 are rejected under 35

U.S.C. 103(a) as being unpatentable over Carrot as applied to claims 1, 23 and 32

above, and further in view of Li et al (US 2003/0108244 A1).

However, Carrot fails to teach of fairly suggest depth data is determined by

stereopsis, that the classifier is a support vector machine, that the plan-view template is

a vector basis obtained by principal component analysis (PCA), and that a decision is to

distinguish between a human, non-human, and different bodies.

Li, as recited in claim 3 and claim 34 respectively, discloses said depth data

using stereopsis / one or more cameras based on image correspondences (see page 6,

right col., line 7).

Li, as recited in claim 10, discloses said classifier is a support vector machine /

SVM's (see page 1, paragraph [0008], lines 18-24, slices or plan-view image will be

affected by SVM's).

Li, as recited in claim 12, discloses said object is a person (see page 1,

paragraph [0005], lines 17-19, paragraph [0007], last two lines, "face and non-face

classification").

Li, as recited in claim 16, discloses Re Claim 16: The method as recited in Claim

1 wherein said plan-view template is represented in terms of a vector basis / SVM's

(see page 1, paragraph [0008], lines 18-24, since slices or plan-view image will be

affected by SVM's, so will the templates since the template is the entire slice).

Li, as recited in claim 17, discloses said vector basis is obtained through principal component analysis (PCA) (see page 1, paragraph [0008], lines 18-24, "PCA as they rotate and use the SVM's").

Li, as recited in claim 19, discloses said decision is to distinguish between a human and a non-human (see page 1, paragraph [0005], lines 17-19, paragraph [0007], last two lines, "face and non-face classification").

Li, as recited in claim 20, discloses said decision is to distinguish between a plurality of different human body orientations (see page 2, paragraph [0016], page 4, paragraph [0039], lines 13-15, classes of view ranges being left profile, left half profile, frontal, etc.).

Li, as recited in claim 21, discloses said decision is to distinguish between a plurality of different human body poses / face poses (see page 7, paragraph [0073], last two lines, page 4, paragraph [0039], lines 13-15).

Li, as recited in claim 22, discloses said decision is to distinguish between a plurality of different classes / position of people (see page 2, paragraph [0016], page 4, paragraph [0039], lines 13-15, "classes of view ranges").

Li, as recited in claim 25, discloses said visual sensor determines said depth data using stereopsis / one or more cameras based on image correspondences (see page 6, right col., line 7).

Li, as recited in claim 27 and claim 38 respectively, discloses said classifier is a support vector machine / SVM's (see page 1, paragraph [0008], lines 18-24, "PCA as they rotate and use the SVM's for multi-pose face detection").

Therefore, in view of Li, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Carrot's visual-based recognition method and system by including the capabilities of stereopsis for determining depth data, the classifier being a support vector machine, the plan-view template being a vector basis obtained by principal component analysis (PCA), and a decision by the classifier being to distinguish between a human, non-human, and different bodies, to the receiving depth data and processing the plan-view template steps of Carrot in order to detect a person's face in real time, in input images containing either frontal or non-frontal views regardless of the scale or illumination conditions associated with the face.

Conclusion

10.   Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of
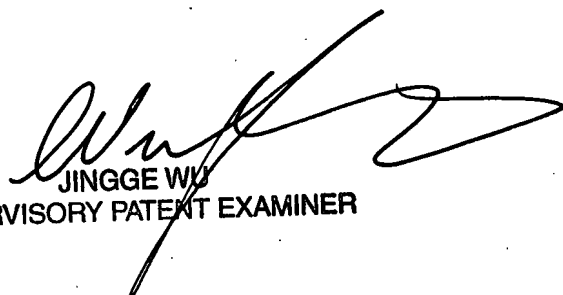
the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bernard Krasnic whose telephone number is (571) 270-1357. The examiner can normally be reached on Mon-Thur 8:00am-4:00pm and every other Friday 8:00am-3:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jingge Wu can be reached on (571) 272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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May 22, 2007

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